## **ABSTRACT OF THE INVENTION**

According to the present invention, a rare earth doped fiber coil comprises a rare earth doped optical fiber having a rare-earth doped core surrounded by a cladding. The outer clad diameter is less than  $100\mu m$ . The rare earth doped optical fiber has a length of 10 m to 50 m and is coiled with a bend radius of less than 40 mm.